

Date: Sun, 27 Feb 94 04:30:22 PST
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #49
To: Ham-Ant

Ham-Ant Digest Sun, 27 Feb 94 Volume 94 : Issue 49

Today's Topics:

 160 M on G5RV
 2m Groundplane Antenna Question
 FCC regulations...
 mechanical analogue of radiation resistance?
 Mobile Antenna Tuners

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Sat, 26 Feb 1994 05:44:12 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!usc!howland.reston.ans.net!
news.intercon.com!udel!news.sprintlink.net!direct!kg7bk@network.ucsd.edu
Subject: 160 M on G5RV
To: ham-ant@ucsd.edu

Ed Engel (eengel@eskimo.com) wrote:

: regular
: Keywords: G5RV
:
:
: Has anyone figured out how much wire you need to add to a regular
: G5RV to tune it to 160 M? Mine is 102' with the 30' of 450 ohm
: ladder line and I normally run it on 75 and 40 M through a MFJ-949D
: tuner. 73 de Ed Engel N7UQZ

Antennas West G5RV App note says 204 ft total center-fed with 64 ft
of 450 ohm ladder-line. I suggest 450 ohm ladder-line all the way

to a balanced antenna tuner.

73, Cecil, kg7bk@indirect.com

Date: Fri, 25 Feb 1994 22:36:34 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!ihnp4.ucsd.edu!pacbell.com!unet!
gratton!johng@network.ucsd.edu
Subject: 2m Groundplane Antenna Question
To: ham-ant@ucsd.edu

In article <1994Feb16.002149.26114@cirrus.com> ebs@csparc046.cirrus.com (eric smith) writes:

>I am trying to understand how bending the radials on a 1/4 wave
>groundplane antenna will effect the radiation resistance and
>radiation pattern of the antenna. I have some measured data that
>indicates that the magnitude of the impedance is increased when the
>radials are bent down away from the monopole element. This makes some
>sense intuitively since the resultant antenna is getting closer to
>being a dipole.

>
>Eric KC5EQI

Tried mail but it bounced.

Did you get any data on the vertical radiation pattern for
your antenna? I am just getting started, and am wondering
how far off the horizontal the bent radial ground plane
antenna radiates.

Does any body else have information on this? I suppose if
I got off it and bought an antenna book I'd find every
thing in there :)

Thanks in advance.

johng

--
John Gratton | johng@net.com
Hans Christian 33 "Nakia" | (415)780-5774

Date: 26 Feb 1994 04:52:37 GMT
From: hmwajjee@athena.mit.edu

Subject: FCC regulations...
To: ham-ant@ucsd.edu

Hello. I am not sure if this is 100% relevant for this channel, but I figure that the people that would know anything about the area of my question are subscribed to this channel.

I am a student here at MIT that is implementing a project to "track" the MIT shuttles, so that students logged into the network will be able to find out where it is and when to wait. In order to do this, I was probably going to use a numerical code, transmitted using touch-tone (DTMF) encoders and decoders,

In order to do this, however, I would have to use a frequency on which to transmit. Thus, this project then finds itself at the hands of the FCC. I was wondering if anyone out there knows about the regulations concerning broadcasting "beeps" over the range of a few square miles in a major city. This will probably be a signal in the range of 10^{-1} kW. Which regulations apply? How do I find out about them? What radio bands would/could I use? Any idea as to the efficiency of such transmission?

Anyway, thanks for listening, and I hope someone out there has both the answers and the time to write back.

Replies to: hmwajjee@mit.edu

Thanks again,

Hussein Waljee
58 Manchester Road,
Brookline, MA, 02146

Date: Sat, 26 Feb 1994 05:55:44 GMT
From: mvb.saic.com!unogate!news.service.uci.edu!ihnp4.ucsd.edu!dog.ee.lbl.gov!
newshub.nosc.mil!news!horowitz@network.ucsd.edu
Subject: mechanical analogue of radiation resistance?
To: ham-ant@ucsd.edu

Mostly, we can find mechanical analogues to electrical phenomena.

What is the mechanical analogue of radiation resistance?

Date: Sat, 26 Feb 94 00:16:31 -0500
From: unogate!news.service.uci.edu!usc!howland.reston.ans.net!
sol.ctr.columbia.edu!hamblin.math.byu.edu!news.byu.edu!news.mtholyoke.edu!

nic.umass.edu!noc.near.net!news.delphi.@@mvb.saic.com
Subject: Mobile Antenna Tuners
To: ham-ant@ucsd.edu

Several antenna experts have disagreed with my last letter to Worldradio magazine concerning the use of a mobile antenna tuner. One wrote me a letter and said, "For best results your HF mobile antenna must be resonant on your transmitting frequency."

Maxwell, author of "Reflections" tells us that the radiator of an antenna system need not be a self-resonant length for maximum resonant current flow... and a substantial mismatch at the junction of the transmission line and the antenna does not prevent the antenna from absorbing all the power available at the junction. If ten feet of coax at least the size of RG-8 is used in mobile HF installations, any matching required to load the transmitter can be done at the input end of the coax without significant power loss plus an improvement in operating bandwidth (compared to matching at the antenna terminals).

You don't have to stop the car, get out, and retune an antenna so you can work the whole band. There is no good reason to use a matching device at the base of the mobile antenna. One can eliminate the hassle by using RG-8 (or better) and an antenna tuner. Visualize the antenna tuner as stretching the electrical length of the RG-8 transmission line to match the 50 ohm characteristic impedance with some reactance left over. It also cancels that left over reactance by introducing a reactance equal in magnitude but opposite in sign. The effect extends all the way to the antenna, tuning a non-resonant length antenna to resonance. An antenna tuner does NOT change the SWR, but short runs of good coax in relatively high SWR mobile installations result in negligible loss. Once the antenna tuner is adjusted properly, the HF mobile antenna is FORCED into resonance. I use a 10m Hamstick plus a mobile antenna tuner to cover all bands from 17m to 10m.

The antenna expert wrote, "Any instruction book on antenna tuners will state: The antenna tuner used between the rig and the antenna system is to achieve maximum performance from the transceiver. This in no way achieves maximum performance from the antenna... you snap on your auto-tuner and WOW! the SWR is zilch. BUT ----your antenna is NOT resonant."

I think the antenna tuner is used between the rig and the antenna system to achieve MAXIMUM RADIATION FROM THE ANTENNA. The antenna tuner cancels the antenna reactance (my antenna IS resonant) and transforms the impedance at the antenna tuner to 50 ohms which, coincidentally, makes my transmitter very happy. As Maxwell says, "My Transmatch really does tune my antenna".

73, KG7BK, CECILMOORE@DELPHI.COM

End of Ham-Ant Digest V94 #49
